

Patent claims

1. A method for the production of a drilling tool,
which can be fitted with a shaft for clamping in a
5 machine tool and with a drill tip (20) provided
with cutting edges, by using a tubular blank (22),
the tubular blank having a forming part (26) and a
clamping part (16) which is arranged at the end of
the forming part (26), is integrally connected to
10 the latter and the tubular wall thickness of which
is greater than in the region of the forming part
(26), the forming part (26) being formed in a non-
cutting manner while thereby forming chip grooves
(12) and coolant channels (27).
- 15 2. The method for the production of a drilling tool as
claimed in claim 1, the outside tube diameter of
the tubular blank being greater in the region of
the clamping part (16) than in the region of the
20 forming part (26).
3. The method for the production of a drilling tool as
claimed in claim 1 or 2, the inside tube diameter
of the tubular blank being equal in the region of
25 the clamping part (16) and the forming part (26).
4. The method for the production of a drilling tool as
claimed in claim 1 or 2, the inside tube diameter
of the tubular blank (22) being smaller or greater
30 in the region of the clamping part (16) than in the
region of the forming part (26).
5. The method for the production of a drilling tool as
claimed in one of claims 1 to 4, a preferably
35 planar clamping area (17) being arranged by a
metal-cutting or non-cutting process on the outer

side of the clamping part (16) of the tubular blank.

- 5 6. The method for the production of a drilling tool as
 claimed in claim 5, the inside tube diameter of the
 tubular blank (22) being constant over the length
 of the clamping part (16).
- 10 7. The method for the production of a drilling tool as
 claimed in claim 5, the inside tube diameter of the
 tubular blank (22) varying over the length of the
 clamping part (16) and being smaller in the region
 of the clamping area (17) than outside the clamping
 area (17).
- 15 8. The method for the production of a drilling tool as
 claimed in one of claims 5 to 7, the clamping area
 (17) running parallel to the tube axis of the
 tubular blank (22).
- 20 9. The method for the production of a drilling tool as
 claimed in one of claims 5 to 7, the clamping area
 (17) being aligned obliquely with respect to the
 tube axis of the tubular blank.
- 25 10. The method for the production of a drilling tool as
 claimed in one of claims 1 to 9, the tubular blank
 (22) having a central channel (24), which has an
 oval or elliptical outline at least over the length
30 of the clamping part (16).
11. The method for the production of a drilling tool as
 claimed in claim 10, the clamping area (17) being
 arranged in the region of the smaller inside tube
35 diameter of the clamping part (16).
12. The method for the production of a drilling tool as
 claimed in one of claims 1 to 11, the tubular blank

(22) having a central channel which, with a constant outside tube diameter, conically diverges at least over part of the length of the forming part (26) toward the free end.

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13. The method for the production of a drilling tool as claimed in one of claims 1 to 12, a transitional portion (32) running conically on the outside between the clamping part (16) and the forming part (26) of the tubular blank.
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14. The method for the production of a drilling tool as claimed in claim 13, the transitional portion (32) running conically on the inside between the clamping part (16) and the forming part (26) in the same direction as on the outer side.
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15. The method for the production of a drilling tool as claimed in one of claims 1 to 14, a step-shaped transitional portion (32) being arranged between the clamping part (16) and the forming part (26) of the tubular blank (22).
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16. The method for the production of a drilling tool as claimed in one of claims 13 to 15, the transitional portion (32) being formed and dimensioned in such a way that at least one bit seat for receiving a cutting bit can be formed in it there.
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17. The method for the production of a drilling tool as claimed in one of claims 1 to 16, the tubular blank consisting of a case hardening steel with a phase transition point of from 480 to 650°C.
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18. The method for the production of a drilling tool as claimed in one of claims 1 to 17, the tubular blank (22) consisting of a case hardening steel with a
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chromium content of less than 2%, preferably of a 16MnCr5 steel.

- 5 19. The method for the production of a drilling tool as claimed in claim 17 or 18, the tubular blank (22) being hardened, preferably carburized or nitrided, at least on its outer surface, after the forming operation.
- 10 20. The method for the production of a drilling tool as claimed in one of claims 1 to 19, the forming part (26) being formed by the swaging method.
- 15 21. The method for the production of a drilling tool as claimed in one of claims 1 to 20, the coolant channels (27) being formed from the central channel of the clamping part (16) steplessly and seamlessly into the forming part (26).
- 20 22. The method for the production of a drilling tool as claimed in one of claims 1 to 21, a clamping shaft for clamping into a machine tool being clamped or shrink-fitted on in the region of the clamping part (16).
- 25 23. The method for the production of a drilling tool as claimed in one of claims 1 to 22, an inflow chamber (34) which widens with respect to the inside tube diameter of the clamping part (16) and communicates with the coolant channels (27) of the forming part (26) being formed into a transitional portion (32) of the tubular blank (22) that adjoins the clamping part (16) in the direction of the forming part (26) having a smaller tubular wall thickness.
- 30 24. A method for the production of a drilling tool as claimed in one of claims 1 to 23, a piece of tube with a constant inside and outside diameter being
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used to form the tubular blank, which is subjected to a metal-cutting operation, preferably drilled or turned on a lathe, on its inner and/or outer surface, while thereby forming the forming part (26) that has a thinner wall than the clamping part (16).

25. A method for the production of a drilling tool as claimed in one of claims 1 to 23, a piece of tube with a constant inside and outside diameter being used to form the tubular blank (22), which is formed, preferably swaged, at least partially over a mandrel from the outside while thereby forming the forming part (26) that has a thinner wall than the clamping part (16).